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## **AQUACULTURE INSURANCE IN VIET NAM: EXPERIENCES FROM THE PILOT PROGRAMME**



## **AQUACULTURE INSURANCE IN VIET NAM: EXPERIENCES FROM THE PILOT PROGRAMME**

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## PREPARATION OF THIS DOCUMENT

This study was initiated by Dr Tipparat Pongthanapanich, economist of Aquaculture Branch, Fisheries and Aquaculture Department in FAO Rome after her desk review on aquaculture insurance followed by her visit to Viet Nam in October 2014. The visit was arranged by the Aquaculture Department of the Directorate of Fisheries and FAO Viet Nam. She met with officers of the programme in government agencies and insurance and reinsurance companies in Hanoi, Ben Tre and Tra Vinh. The latter two provinces were part of the pilot areas of aquaculture insurance where she met with farmers, local officers and insurers. During the visit, some legal documents of the programme were collected and translated into English. In 2015, Dr Kim Anh Thi Nguyen, senior economist of the Faculty of Economics of Nha Trang University, Viet Nam, was commissioned to conduct this study.

The output is under two FAO strategic programmes, namely, SP4 – Enable more inclusive and efficient agricultural and food systems, Output 40301 – Public and private sector institutions are supported to design and implement financial instruments and services that improve access to capital for efficient and inclusive agrifood systems and SP5 – Increase the resilience of livelihoods to threats and crises, Output 50102 – Enhancing coordination and improved investment programming and resource mobilization strategies for risk reduction and crises management.

This report provides information on the development of aquaculture insurance for small-scale farms based on the experiences of the government's pilot programme. The study sought to understand the development process and implementation results of and lessons from an insurance programme designed as a risk sharing instrument for resource poor farmers in a developing country.

The output was achieved with the cooperation and support of many people especially those working in the field who helped with the data collection and the publishing team in FAO Rome. Reviews and comments on the draft versions were provided by Mr Ho Hai Dang, General Manager of Agriculture Insurance Division, Bao Minh Insurance Corporation in Ho Chi Minh City, Mr Nguyen Song Ha, FAO Viet Nam and Dr Susana Siar, FAO Rome.

The review was further refined following comments at the FAO Workshop on Development of Aquaculture Insurance System for Small-scale Farmers held in Bangkok on 20–21 September 2016, in which it was presented as one of the resource papers by Dr Kim Anh Thi Nguyen.

The definitions of insurance terms used in this report can be found in Annex 5 'Glossary of common terms used in crop, livestock and aquaculture insurance' of the FAO Agricultural Services Bulletin 164 – *Livestock and aquaculture insurance in developing countries* authored by Roberts (2007).

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*Aquaculture insurance in Viet Nam: Experiences from the pilot programme*, by Kim Anh Thi Nguyen and Tipparat Pongthanapanich. FAO Fisheries and Aquaculture Circular No. 1133. Rome, Italy.

### **ABSTRACT**

This paper describes the experiences in aquaculture insurance in Viet Nam. The study focused on the first pilot phase of the national agricultural insurance programme coordinated by the Ministry of Finance and Ministry of Agriculture and Rural Development during 2011–2013. The programme was mandated by Decision No. 315/QD-TTg of the Prime Minister dated 1 March 2011.

The programme covered rice farming, livestock husbandry and aquaculture. The Government subsidized the insurance premiums by applying four levels of entitlement according to the level of participants' household income: 100 percent to poor households, 80 percent to near-poor households (later increased to 90 percent), 60 percent to non-poor households, and 20 percent to organizations or cooperatives. Participating in the entire programme was 304 017 households and one agricultural organization. Poor households accounted for 77 percent.

The aquaculture pilot insurance was implemented in the southern provinces of Ben Tre, Bac Lieu, Ca Mau, Soc Trang and Tra Vinh, covering 7 487 households that voluntarily participated. The natural risks covered were typhoon, flood, drought, frost, saltwater intrusion and tsunami. The diseases covered for pangasius were liver and kidney bacterial diseases, and white spot syndrome, yellow head disease, infectious hypodermal and hematopoietic necrosis virus and acute hepatopancreatic necrosis disease (AHPND) or early mortality syndrome for black tiger shrimp. For whiteleg shrimp, the same diseases of black tiger shrimp were covered plus taura syndrome and infectious myonecrosis virus.

The programme assessment showed that rice insurance and livestock insurance achieved satisfactory results of acceptable loss ratios, i.e. premium earned is more than indemnity paid. In spite of the many problems encountered in establishing the livestock insurance programme, the results were positive.

The aquaculture insurance faced many difficulties largely because of the frequent and widespread epizootics. The overall result showed that the aquaculture insurance was not well managed. Moral hazard behavior was noted. Without sufficient evidence and data to support claim processes, many claims were denied loss compensation. The lessons suggest the need to prepare technical guidelines for the insured and insurers including the monitoring procedures for farm production, farm management practices and farm improvements, and to relate these to losses caused by diseases or other risks. Should the programme go into a second phase – which has been recommended and under review as of September 2016 – it is suggested to be carried out on a smaller pilot scale on a scientific-based format. This would enable a more systematic collection and analysis of data and information to guide revisions to the insurance programme.

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**ABBREVIATIONS AND ACRONYMS**

AHPND	Acute Hepatopancreatic Necrosis Disease
DARD	Department of Agriculture and Rural Development
EMS	Early Mortality Syndrome
IHHNV	Infectious Hypodermal and Hematopoietic Necrosis Virus
IMNV	Infectious Myonecrosis Virus
MARD	Ministry of Agriculture and Rural Development
MOF	Ministry of Finance
PPCs	Provincial People's Committees
SDA	Sub-department of Aquaculture
VBARD	Vietnam Bank for Agriculture and Rural Development
VINARE	Vietnam National Reinsurance Corporation
VND	Viet Nam Dong

## 1. INTRODUCTION

Aquaculture in Viet Nam began in the early 1960s with small-scale extensive culture systems (Nguyen, Duong and Ly, 2005). The sector started to commercialize and export in the early 1980s. According to FAO statistics, in 2004 aquaculture production was 1.2 million tonnes, which was 39 percent of total aquatic production. By 2014, the growth had almost tripled with a production of 3.4 million tonnes, 54 percent of total aquatic production. The two main commodities, shrimp and pangasius, shared around 70 percent of Viet Nam's fisheries exports. Earnings from aquaculture exports have contributed to improving farmers' livelihoods and stimulating economic growth. The rapid growth of the sector can be attributed to diversification and an increase in exports of pangasius and shrimp, mostly processed. The country expects to produce 4 million tonnes of aquaculture products in 2020.

The impacts of climate change on aquaculture production due to temperature variation include changes in productivity and disease outbreaks, which necessitate changing species composition, feed supply, and relocation of production and processing sites (OECD, 2010). Shrimp farmers and the industry stakeholders see the frequent extreme weather events as the most serious risk especially to resource-poor farmers (Abery *et al.*, 2011).

Viet Nam is one of the world's most exposed countries to multiple natural disasters that include tropical cyclones, tornadoes, floods, landslides and droughts. An estimated 59 percent of its total land area and 71 percent of its population are vulnerable to cyclones and floods. In 2004, saltwater intruded 30–50 km up the Red River and 60–70 km up the Mekong River affecting more than 1.7 million ha of land. In 2008 natural disasters caused enormous losses to agriculture; extreme cold in the north caused the death of thousands of heads of cattle. In 2010, 30 000 hectares of rice were lost resulting in a financial loss of 11 700 billion Viet Nam Dong (VND)<sup>1</sup> (Tran, 2014). Based on a recent vulnerability assessment at the global scale, Viet Nam aquaculture in all farming environments is highly vulnerable to climate change (Handisyde, Telfer and Ross, 2016).

The Government, feeling the financial burden from frequent natural disaster events and diseases, suggested that 2–5 percent of the annual budget be made available for adversity assistance (World Bank, 2010). The encumbrance compelled it to seek less burdensome means for disaster risk relief and management. The first attempt was in 2011 when the agricultural insurance programme was launched and managed by state owned companies. It suffered major losses. The Government then resorted to disaster and risk management to deal with farmers' agricultural distress through the conventional rehabilitation programme.

As a further measure, the Government decided to implement agricultural insurance starting with a pilot programme during 2011–2013. The programme provided insurance cover for rice, livestock and aquaculture production against storm, flood, drought, cold, frost, tsunami and other perils. It also provided cover against named pests, diseases and epidemics specific to rice, livestock and aquaculture. The rice insurance was an index-based scheme while the livestock insurance and aquaculture insurance were indemnity-based. The programme was implemented throughout Viet Nam for rice, livestock and aquaculture all together in 20 provinces. Participating farm households received different levels of premium subsidies in accordance to their levels of income.

The Government through the Ministry of Finance (MOF) planned to continue the crop and livestock insurance pilots in a second phase (2016–2018). The aquaculture insurance pilot operated at a great loss; the loss ratio<sup>2</sup> was 300 percent. This strongly suggests the need for Government and the stakeholders to have a better understanding of aquaculture insurance to be able to plan for the next provision.

In light of promoting insurance as one of the instruments for managing risks in the aquaculture sector especially for small-scale and medium-scale enterprises, this report aims to provide information on the pilot programme of Viet Nam and share the experiences and lessons from its implementation. The information and lessons may be useful for other developing countries that seek the options of financial measures to improve small-scale farmers' risk awareness, reduce their vulnerability to natural, biological and economic risks and boost their resilience.

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<sup>1</sup> In 2011–2013, when the pilot programme was implemented, the exchange rate was around VND 20 500–21 000 per USD 1. In 2016, it has been around VND 22 400.

<sup>2</sup> Loss ratio is the proportion of claims paid (indemnities) to premium earned.

The sections that follow describe: (i) the disaster management measures used in Viet Nam; (ii) agricultural insurance development in the early stages; (iii) general information on the pilot programme; (iv) mechanisms to support the pilot programme; and (v) implementation results of the entire programme and the aquaculture insurance programme. The latter sections provide lessons, conclusion and suggestions for a way forward.

## 2. DISASTER MANAGEMENT MEASURES IN VIET NAM

The Government had been using direct payment as practically the sole measure to compensate farmers' losses from natural disasters and disease epidemics. Four main legal documents support the measure:

- Decision No. 719/QD-TTg of the Prime Minister (dated 5 June 2008) on support policies to prevent and combat diseases of cattle and poultry. It aims at providing financial support in terms of compensation to livestock producers as well as reducing pandemics.
- Decision No. 1442/QD-TTg of the Prime Minister (dated 23 August 2011) to amend and supplement a number of articles in Decision No. 719/QD-TTg.
- Decision No. 142/2009/QD-TTg of the Prime Minister (dated 31 December 2009) on mechanisms and policy support to crop, livestock, aquaculture production recovery from damage caused by natural disasters and disease epidemics. The policy applies to individual farms and cooperatives. It set out the conditions for farmers to receive government support, the means of support and the amount. The central budget supports 80 percent of the input cost for mountainous provinces and the central highlands and 70 percent for the other provinces and cities.
- Decision No. 49/2012/QD-TTg of the Prime Minister (dated 8 November 2012) to amend and supplement Article 3 of Decision No. 142/2009/QD-TTg. The financial support was modified in accordance to the specified levels of indemnities.

The Government provided financial and in-kind support from the central and local contingency budgets, relief aids from international organizations, and the state reserve fund for disaster relief. The Vietnam Bank for Agriculture and Rural Development (VBARD) provided loans at low interest rates to commercial and small farms. VBARD also forgave loans of farmers who suffered from natural disasters as well as restructured the loans of many farmers. However, the provisions did not reflect the differences in risk levels due to adverse weather or diseases that farmers in different regions of Viet Nam faced. The Government ultimately absorbed these costs by recapitalizing VBARD.

The Government relied on a combination of financial resources to respond to the needs of farmers. Despite the fact that the Government, the private sector and donors absorbed some of the losses, there remained a large resource gap between available financial resources and post-disaster expenditure requirements. To assist farmers in need after a disaster, all levels of government were required to set 2–5 percent of their annual budget as disaster contingency funds (World Bank, 2010). This was financially burdensome to central and local governments, which compelled the Government to seek other avenues for disaster and risk management.

In 2009, after attempts of insurance companies at offering agricultural insurance services, MOF started designing a national pilot programme. The development process included a review of legal documents, consultation with stakeholders, and visits of insurance players to France and China. The development had technical support from international consultants including experts from Swiss Re<sup>3</sup>. The team of consultants and stakeholders preparing the documents for the pilot programme evaluated the political and socio-economic advantages of agricultural insurance. They assessed the existing financial resources for disaster risk reduction including the state contingency budget, flood and storm control fund, credits, and insurance businesses. The team concluded that agriculture insurance is necessary for Viet Nam because it would: (i) contribute to raising farmers' awareness to proactively implement risk reduction and prevention measures to minimize losses; (ii) reduce the strain on the government budget from having to provide direct support in case of a catastrophe; and (iii) create a fair method to recover financial losses.

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<sup>3</sup> Swiss Reinsurance Company Ltd, generally known as Swiss Re, is a reinsurance company based in Zurich, Switzerland. It is the world's second-largest reinsurer.

The content of the governmental pilot programme on agricultural insurance was included in Decision 23/QĐ-TTg (dated 6 January 2010) on approving a proposal for ‘Developing trading in rural areas during the period 2010–2015 and its vision to 2020’. On 1 March 2011, the Prime Minister issued Decision No. 315 on the ‘Provision of agricultural insurance pilot during the period 2011–2013’. The provision includes livestock and aquaculture insurance.

### 3. A BRIEF HISTORY OF AGRICULTURAL INSURANCE IN VIET NAM

The first agricultural insurance programme in Viet Nam was for rice in 1982. It was implemented in Nam Ninh and Vu Ban districts of Nam Dinh province by Bao Viet Insurance Corporation, a state-owned company. Two years later, the programme was deemed a failure; the main factor was the transformation from cooperative economy to household economy. In 1993, Bao Viet tried again by offering rice-yield loss insurance coverage for five years (1993–1997). The Company selected the main rice production areas in 12 provinces, where the Provincial People’s Committees (PPCs) reacted favorably to the scheme, which among others provided insurance services on a voluntary basis. The Company faced an aggregate loss ratio of 110 percent (GlobalAgRisk, 2009). The programme was not cost effective because of the limited and fragmented area covered, which increased transaction costs. It was also found that the insured farms were primarily from those areas subjected to the greatest yield loss risk, creating a serious adverse selection problem for Bao Viet. Specifically, farm level losses were determined relative to coverage that was established using estimates of area yields. Farmers with expected yields less than the average would be attracted to the insurance while those with expected yields greater than the average would choose not to participate (GlobalAgRisk, 2009). The programme was discontinued.

In 1982, Bao Viet also launched a pilot programme of livestock insurance in three provinces that later expanded to six provinces, namely, Ha Tay, Hoa Binh, Ha Nam, Nam Dinh, Ninh Binh and Thanh Hoa. The Company used the existing structures of the former cooperative system as agents for its contracts. Through the support of the local officials of these cooperatives, Bao Viet was able to convince farmers of the advantages of livestock insurance. The local officials of the cooperatives collected the premiums from the farmers. This kept the transaction and marketing costs of Bao Viet low.

During the process of economic reform, which started in 1986, policy and structural changes led to the restructuring of the agricultural sector. State farms and agricultural cooperatives were divided into small holdings. The command economy gave way to a market economy in the mid-1980s. With the dissolution of the cooperatives, the structures linking Bao Viet and the local authorities vanished. This increased the cost of providing insurance services. The demand for insurance decreased as Bao Viet raised the premium rates to compensate for the higher cost. In 1998, Bao Viet’s livestock insurance scheme faced big losses as the indemnities paid to farmers were much higher than the premium earned. Bao Viet has reduced its efforts to sell contracts, and the importance of the livestock scheme in the company’s portfolio has significantly declined. The main reasons for the losses are the following (Dufhues, Lemke and Fischer, 2004):

- After the collapse of its sales network, the pool of insured farmers became smaller and much riskier, as farmers with high production skills and less risky production methods withdrew from the insurance scheme. This is a classic case of adverse selection.
- The premium, previously calculated over a broad pool of clients, was not adjusted to the new situation. Moreover, it was acknowledged that the agencies put in place after the breakdown of the sales network had little knowledge of the business and thus probably accepted more claims than was necessary.

As of 2005, the revenue of Bao Viet from agricultural insurance was approximately VND 1 billion per year, less than one percent of the total revenue of the Company. From 2005, Bao Viet started insuring rubber plantations in the Central Highlands, Binh Phuoc, Binh Duong and Kon Tum, and launched a dairy insurance. These were implemented at a small-scale level. High losses or low profits made the business of providing services especially to resource poor farmers unattractive to insurers. Bao Viet also tried to pilot an insurance project for pangasius targeting big enterprises in the Mekong Delta but the conditions of the insurance were too strict for the farmers (Tran, 2014). This attempt did not get off the ground.

In 1999, GRET, a non-governmental organization, set up a pig insurance programme bundled with feed credit

contracts. It was stopped in 2004 due to heavy losses. There were some economic issues that plagued the operation: (i) the farmers sold the pigs when the price was high and turned to the insurance company when the price was low; (ii) a significant correlation between the demand for insurance and disease prevalence which led to high compensation during disease outbreaks; and (iii) the diminished fund to support the programme. Management problems included the inadequate support of personnel and local authorities and insufficient technical support and information to operate the programme (Roth and McCord, 2008).

Groupama General Insurance Company Ltd, a French company, began an agriculture insurance service in Viet Nam in 2001. The Company offered several insurance services for livestock, crops, farm physical assets, supply of materials, equipment, accident of agricultural workers and civil liability, and shrimp farming in the provinces of the Mekong Delta region. In 2005, the Company expanded its operation area beyond the Mekong Delta while narrowing its coverage to only cattle and pigs. Although a big agriculture insurance company with extensive international experience, Groupama's agriculture insurance business did not prosper in Viet Nam because of low revenue and high compensation rates (Hien, 2011).

Another main player in agricultural insurance is Bao Minh Joint Stock Insurance Company. Since 2010, the Company has been providing weather-indexed insurance for rice under the agricultural loan programme in Dong Thap province. However, the relatively high premium (about 15 percent of the amount of credits received), made the banks lukewarm to the programme (Hien, 2011). Bao Minh has also deployed since 2011 weather-indexed insurance for coffee plantations in the Central Highlands. The results have been modest because of the country's weak and inconsistent legislation on agricultural insurance. The legislation on coffee insurance is incomplete and needs to be examined (Dang, 2015).

The overall market share of agricultural insurance is minimal; the premium revenue was less than 1 percent of the entire non-life insurance business. However, the business performance showed some improvement from 2006 when the premium earnings for each year were more than the indemnity (Table 1).

**Table 1. Overall performance of crop and livestock insurance in Viet Nam, 2004–2010**

Year	Premium (billion VND) [1]	Premium in % of non-life insurance premium revenue	Claim (billion VND) [2]	Loss ratio (%) [2] ÷ [1]
2004	3.267	0.069	3.635	111
2005	0.454	0.008	1.211	267
2006	0.737	0.012	0.535	73
2007	0.833	0.010	0.647	78
2008	1.377	0.015	0.344	25
2009	1.696	0.010	0.345	20
2010	2.450	0.050	0.719	29

Source: MOF (2011)

A major reason for the inefficient implementation of agricultural insurance in Viet Nam was the inappropriate design of insurance schemes and inadequate services. Most companies offered multi-risk insurance services rather than specific services for a particular peril. This is supported by the information from experts in Bao Viet who mentioned that paddy fields are located in large and fragmented areas while the number of insurance staff was small even as those in the programme lacked enough knowledge on the insured crops or livestock. The operating cost was high. Moral hazard occurred because there were no effective risk management practices for insured crops and livestock. The settlement of insurance claims was slow and procedures were laborious and difficult for the insured farmers to understand (IGES, 2013).

There are many difficulties in agricultural insurance especially for a programme that aims to serve small-scale enterprises. On the part of the insured, small-scale farmers could ill afford to participate in insurance programmes with high premium rates. On the insurers' side, high losses or low profitability make the business less attractive. Other problems are the high cost of selling insurance, damage assessment, inspection and compensation process. Disaster and epidemic risks are often catastrophic inflicting huge financial losses that strain the financial capacity of the insurance companies. The insurance companies needed to be backed by reinsurers. However, the reinsurance market in Viet Nam was undeveloped (IGES, 2013). The other reasons for the poor performance of

agricultural insurance are the lack of a comprehensive legal framework (except reactive government decisions and circulars), no central database and weak public-private partnership (MIA, 2012).

#### 4. GENERAL INFORMATION ON THE PILOT PROGRAMME

The agricultural insurance pilot programme was implemented in three sectors, i.e. rice, livestock and aquaculture. It covered 20 provinces – 7 provinces (481 communes) for rice insurance, 9 provinces (180 communes) for livestock insurance and 5 provinces (84 communes) for aquaculture insurance (Figure 1).<sup>4</sup> The commodities insured were rice under productivity index insurance scheme and buffalo, cow, dairy cow, pig, poultry, pangasius (*Pangasius bocourti* and *Pangasius hypophthalmus*), black tiger shrimp (*Penaeus monodon*) and whiteleg shrimp (*Litopenaeus vannamei*) under the named-peril insurance or damage-based indemnity insurance scheme.

**Figure 1. Implementing provinces of the agricultural insurance pilot programme**



<sup>4</sup> Rice insurance was implemented in An Giang, Binh Thuan, Dong Thap, Ha Tinh, Nam Dinh, Nghe An and Thai Binh. Livestock insurance was implemented in Bac Ninh, Binh Dinh, Binh Duong, Dong Nai, Nghe An, Thanh Hoa, Hai Phong, Hanoi, Vinh Phuc, In Nghe An province, both rice and livestock insurance programmes were implemented.

Aquaculture insurance was piloted in the southern provinces of Ben Tre, Soc Trang, Tra Vinh, Bac Lieu and Ca Mau; pangasius insurance in Ben Tre and Tra Vinh and black tiger shrimp and whiteleg shrimp in all five pilot provinces. In each province, three districts were selected and in each district three communes were selected to pilot the aquaculture insurance schemes. The natural disaster risks covered were typhoon flood, drought, frost, saltwater intrusion and tsunami. The diseases covered for pangasius were liver and kidney bacterial diseases; for black tiger shrimp, the white spot syndrome, yellow head disease, infectious hypodermal and hematopoietic necrosis virus (IHHNV), and acute hepatopancreatic necrosis disease (AHPND) or early mortality syndrome (EMS); and for whiteleg shrimp, the same diseases covered for black tiger shrimp plus taura syndrome and infectious myonecrosis virus (IMNV).

## **5. KEY MECHANISMS TO SUPPORT THE PILOT PROGRAMME**

The key mechanisms that supported pilot programme included the designation of the responsible government agencies, policy support in terms of decisions and circulars, financial support from government in terms of premium subsidy and the programme's operational cost, and the participating insurance players who provide the insurance services within the above provision and support from the government.

### **5.1 Responsible government agencies and their roles**

MOF and the Ministry of Agricultural and Rural Development (MARD) are the core agencies. They coordinate the implementation of the programme with other levels of government. The Steering Board of MOF for implementing the pilot programme was established under Decision No. 1653/QD-BTC of MOF dated 12 July 2011. MOF allocated central budget funds and provided policy support and guidance. The Ministry screened and authorized the insurance companies to be involved and approved insurance policies including premium and indemnity rates. The responsibilities of MOF included inspection and evaluation of the overall project and reporting to the Prime Minister.

MARD provided the agriculture-related technical support. The Ministry specified the types of risks and commodities to be covered and prescribed farm practices for participating farms.

On 12 September 2011, MOF issued Document 1219/BTC-QLBH requesting PPCs to coordinate and carry out the pilot programme in compliance with Decision No. 315/QD-TTg. According to this request, the chairs of PPCs in 20 provinces were selected and their local steering committees nominated. The steering committees at provincial, district and commune levels were established. PPCs with guidance from MOF and MARD directed and organized the programme implementation in their provinces with support from the People's Committees at district and commune levels. PPCs were responsible for the allocation of central and local funds for the programme implementation. They reported the progress and results of the implementation of the pilot programme and provided recommendations to MOF and MARD. The responsibilities of each agency are summarized in Table 2.

**Table 2. Main government agencies responsible for the pilot programme**

Agency	Main responsibility
MOF	<ul style="list-style-type: none"> <li>• Choosing insurance companies to implement the programme</li> <li>• Approving the rules for premium, insurance commissions and insurance liability</li> <li>• Guiding financial mechanisms, supporting policies for insurance companies</li> <li>• Stipulating profile, procedures and processes for agriculture insurance</li> <li>• Providing funding under the responsibility of the central budget and guiding PPCs to implement policies to support agriculture insurance</li> <li>• Supervising the implementation of agriculture insurance</li> <li>• Reviewing, evaluating and annually reporting the implementation of agriculture insurance to the Prime Minister</li> </ul>
MARD	<ul style="list-style-type: none"> <li>• Giving specific guidance on the types of natural disasters and epidemics that are covered</li> <li>• Coordinating with MOF in stipulating profile, procedures and processes for agriculture insurance</li> <li>• Determining criteria on scales of paddy, animal husbandry, aquaculture for agriculture insurance</li> <li>• Specifying standard culture practices for paddy, livestock and aquaculture in agriculture insurance</li> <li>• Quarterly reporting of performance assessment under its scope of responsibility and proposing corrective measures, as needed, to MOF</li> </ul>
PPCs	<ul style="list-style-type: none"> <li>• Establishing the steering committees for local agricultural insurance chaired by the vice chair of each PPC</li> <li>• Organizing the implementation of agriculture insurance, allocating funding (from the central budget and local budgets), inspecting and supervising agriculture insurance in the province</li> <li>• Coordinating with MOF in stipulating profile, procedures and processes for agriculture insurance</li> <li>• Reporting of quarterly assessment and proposing corrective measures to MOF and MARD</li> </ul>

In the implementation of aquaculture insurance, the Department of Agriculture and Rural Development (DARD) of each province, in coordination with other relevant departments under MARD, provided technical advice to PPCs. DARD announced the date for starting the shrimp crop (stocking time) and advised PPCs on the declaration of cost norms for the feed and seed to be used as a basis for compensation. In addition, the DARD's provincial offices through the local steering committees cooperated with the insurance companies, organized the training courses, workshops and conferences, and coordinated with the officers at province, district and commune levels and with the local insurance agents.

The Aquaculture Department of the Directorate of Fisheries served as the executive organization of MARD to implement the programme and reported to MARD. MARD was responsible for overall implementation and reporting to MOF. The Sub-department of Aquaculture (SDA) in each province provided technical assistance at farm level to the steering committees and to the insurance companies. SDA in coordination with the Aquaculture Zone Management Units in the pilot communes examined and assessed pond conditions. The assessment results were the basis for developing insurance contracts.

PPCs also issued the technical protocols and the disease control protocols, which included diagnosis, confirmation and announcement of the disease outbreaks as well as catastrophic losses, as a basis for insurance compensation. For these tasks, they received technical advice from the provincial DARD and SDA.

## 5.2 Policy support

The Viet Nam insurance regulatory framework dramatically changed in 2011 when the amended law on insurance came into force. The law was amended to make it consistent with Viet Nam's commitments to the World Trade Organization and international practices of trade liberalization; this put the insurance companies on par with global standards. The main legislation regulating insurance business in Viet Nam is the Law on Insurance Business of 2000 and its amendment in 2010. Guiding decrees and circulars are issued under this law.

To initiate the pilot agricultural insurance, the Prime Minister on the recommendation of MOF issued Decision No. 315/QD-TTg dated 1 March 2011 on the pilot implementation of agricultural insurance during 2011–2013. This was followed by Decision No. 358/QD-TTg dated 27 February 2013 of the Prime Minister that amended and supplemented some articles of Decision No. 315/QD-TTg. Under both decisions, MOF, MARD and PPCs enacted, amended and supplemented timely guidelines for the implementation of the two decisions of the Prime Minister.

Based on the opinions from MARD, PPCs of 20 provinces in the pilot areas, and the participating insurance companies, MOF issued the following circulars and decisions that guide the implementation procedures, set premium and indemnity rates, which were revised several times during the implementation period, and financial provision to support participating insurance companies.

- Circular No. 121/2011/TT-BTC dated 17 August 2011 of MOF provided that the State will support 100 percent of the insurance premiums for poor households and individual farmers that are eligible for pilot agricultural insurance; 80 percent for those living just above the poverty line; 60 percent for non-poor households; and 20 percent for agricultural organizations.
  - Circular No. 57/2013/TT-BTC dated 6 May 2013 of MOF to amend and supplement Circular No. 121/2011/TT-BTC providing guidelines for a number of articles in Decision No. 315/QD-TTg on pilot implementation of agriculture insurance for the period from 2011 to 2013.
- Decision No. 3035/QD-BTC dated 16 December 2011 of MOF on issuing rules, premium and indemnity rates in agriculture insurance. Under this Decision, it expanded the scale of insured risks to cover damages from thunderstorms, tornadoes and diseases such as of cattle (septicemia), swine (septicemia and cholera) and poultry (Newcastle, gumboro and cholera).
  - Decision No. 2114/QD-BTC dated 24 August 2012 of MOF to amending and supplement some articles of Decision No. 3035/QD-BTC. This amended and implemented fees as well as levels of responsibilities. The Decision clarified the process of disease confirmation, ensured transparency, clarified and facilitated settlement of indemnity quickly and accurately.
  - Decision No. 1042/QD-BTC dated 8 May 2013 of MOF to amend and supplement some articles of rules, premium and indemnity rates for shrimp and pangasius insurance under Decision No. 3035/QD-BTC and Decision No. 2114/QD-BTC.
  - Decision No. 1725/QD-BTC dated 23 July 2013 of MOF to amend and supplement rules, premium and indemnity rates for shrimp and pangasius under Decision No. 1042/QD-BTC.
- Circular No. 101/2012/TT-BTC dated 20 June 2012 of MOF, stipulating some financial issues related to insurers and reinsurers implementing the pilot agricultural insurance programme under Decision No. 315/QD-TTg.

Based on the opinions of MOF, PPCs and the insurers, MARD issued Circular No. 47/2011/TT-BNN dated 29 June 2011 of MARD providing guidelines on implementing the pilot programme on crop, livestock, and aquaculture insurance under Decision No. 315/QD-TTg. The diseases such as blight, rice blast (for rice), septicemia, liver fluke, pleurisy (for cattle and buffaloes), cholera, septicemia (for pigs), and some unknown diseases (for shrimp or fish) affecting farmers' crops were brought under regulation.

In addition, MARD issued the recommendation on good production practices for all insured commodities (i.e. rice, buffalo, dairy cow, pig, poultry, pangasius, black tiger shrimp and whiteleg shrimp) and issued three procedures for announcing and confirming disease epidemics for the insured crops, animals, pangasius and shrimp.

Based on instructions and guidelines from MARD and MOF, PPC requested DARD to issue documents on culture practices for rice, care of livestock, and aquaculture practices in accordance with actual situation in each locality.

### 5.3 Insurance business players and networks

In line with Decision 2174/QD-BTC, Decision 2175/QD-BTC and Decision 2176/QD-BTC, MOF appointed the Vietnam National Reinsurance Corporation (VINARE)<sup>5</sup>, Bao Viet<sup>6</sup> and Bao Minh<sup>7</sup>, the two large insurers in Viet Nam, to participate in the design and implementation of the pilot programme. This was with support from

<sup>5</sup> VINARE, headquartered in Hanoi, provides a range of reinsurance products and services to the life and non-life insurance companies operating in Viet Nam. It was established on 27 September 1994 as a state-owned company, incorporated as a joint-stock company in January 2005, and listed on the Hanoi Securities Trading Centre on 13 March 2006.

<sup>6</sup> Bao Viet is the largest Vietnamese insurance company and Viet Nam's seventh largest listed company in terms of market capitalization. It is state-owned and has a strategic partnership with HSBC, which also holds 18 percent of Bao Viet's shares.

<sup>7</sup> Bao Minh is a leading joint-stock insurance corporation of Viet Nam with multi-sectorial operations in the field of financial services. It provides non-life insurance and carries out financial investment mainly shared by the State (63 percent by the MOF and more than 20 percent by other state-owned enterprises).

Swiss Re, which has an office in Viet Nam, in terms of technical assistance, actuarial services and reinsurance capability. The agreed responsibilities of the companies are summarized as follows:

- implementing the pilot programme in accordance with the decisions of and guidance from MOF and MARD;
- coordinating with MARD and PPCs to expand distribution channels and transaction systems to serve participating farmers; and
- reporting the implementation results and providing recommendations to MOF, MARD and PPCs.

According to Article 13 of Circular No. 121/2011/TT-BTC of MOF dated 17 August 2011 Bao Viet, Bao Minh and VINARE shall provide insurance products and services to the pilot programme on a not-for-profit basis. The same Circular's Article 14 provides that at the end of the programme, should the losses from the implementation exceed 10 percent of its equity, MOF would have a guidance mechanism within its authority or report to the Prime Minister for consideration of support to cover the losses.

For insurance product distribution, farmers in each commune appointed one representative to interact with insurance companies on their behalf. This was either a senior person from the community or the commune head or the local head of the farmer's union. The representative, whose appointment was endorsed by PPCs, received the necessary support from them. The representatives acted in much the same way as insurance agents, but the difference was that they represented the farmers and usually received better support from the local authorities. The representative of each commune signed up the farmers who were willing to participate in the programme and recorded all insurance-relevant information such as area planted to rice per season, number of livestock per type, the aquaculture area and volumes produced before issuing to farmers their insurance certificates. The insurance companies issued the insurance policies to the representatives, whose responsibilities included collecting the insurance premium from the farmers and distributing payment claims. Without such support from the local authorities and well-constructed institutional network, insurance companies would have had difficulty gaining access to the small-scale farmers.

#### **5.4 Financial support**

Farmers' participation in the pilot programme was voluntary. The Government subsidized the premiums of participants by applying four levels of entitlement as follows:

- 100 percent of the premium to poor farming households and individuals;
- 80 percent for near-poor farming households and individuals; later changed to 90 percent by the Prime Minister's Decision No. 358 dated 27 February 2013;
- 60 percent to non-poor farming households and individuals; and
- 20 percent to farming organizations and cooperatives.

The classification of poverty is defined in Decision 09/QĐ-TTg dated 30 January 2011 of the Prime Minister on applying for poor households for the period of 2011–2015. Poor households are those having average monthly income of VND 400 000 or below, the near-poor from VND 401 000 to VND 520 000 and the non-poor above VND 520 000.

The allocation of financial support from the central government was 50 percent to the provinces that contribute less than 50 percent of their annual revenue to the central budget and the other 50 percent came from the provincial budgets. Provinces that contribute more than 50 percent of their annual revenue to the central budget used their own budget and received no allocation from the central government. The poor provinces that have no contribution to the central budget received 100 percent financial support.

## **6. OVERALL IMPLEMENTATION RESULTS OF THE PILOT PROGRAMME**

This pilot programme was established in 20 provinces with the aim of stabilizing production and income of farming communities and supporting the government's social welfare policies. The implementation results of the programme during 2011–2013 was reported by MOF (2014):

- Total insured value reached more than VND 7.74 trillion, covering rice, livestock and aquaculture.

- There were 304 017 households that participated of which 233 361 (77 percent) were poor, 45 944 (15 percent) near-poor, and 24 712 (8 percent) non-poor.
- The total premium earned by the participating companies was VND 394 billion of which more than half came from aquaculture insurance.
- Total claims amounted to VND 702 billion of which almost all (95 percent) went to the aquaculture insured.
- The overall programme from 2011 to 2013 ended up with the loss ratio of 178 percent; aquaculture insurance incurred the highest loss ratio of 306 percent, while rice and livestock insurance had small claims and thus small loss ratios (Table 3).

**Table 3. Overall implementation result of the pilot programme**

Sector	Commodity	No. of households participated	Area (ha)	Sum insured (billion VND)	Premium (billion VND)	Claim (billion VND)	Loss ratio (%)
Crop	Rice	236 397 (78%)	65 297 (92%)	2 151 (28%)	92 (24%)	19 (3%)	21
Livestock	Buffalo, dairy cow, pig and poultry	60 133 (20%)		2 713 (35%)	84 (21%)	13 (2%)	16
Aquaculture	Black tiger shrimp, whiteleg shrimp and pangasius	7 487 (2%)	5 803 (8%)	2 884 (37%)	218 (55%)	670 (95%)	306
Total		304 017 (100%)	71 100 (100%)	7 748 (100%)	394 (100%)	702 (100%)	178

Note: USD 1 = VND 20 000

Source: MOF (2014)

The pilot programme was successful in terms of profitability from crop and livestock insurance. The aquaculture insurance programme operated at a loss; the number of participants was less than expected and the loss was substantial.

## 7. RESULTS OF THE AQUACULTURE INSURANCE PILOT

### 7.1 Overall result

The results of the pilot programme implementation on aquaculture insurance during 2001–2013, reported by PPCs (2014), are summarized in Table 4. From the total participants of 7 487 households in five provinces, 2 054 (27 percent) were poor, 300 (4 percent) were near-poor and 5 133 (69 percent) were non-poor households (69 percent). Soc Trang province had the largest number of farmers insured followed by Ben Tre, Bac Lieu, Ca Mau and Tra Vinh. Total insured area was 5 803 ha, of which 55 percent was in Soc Trang. The insured area per household ranged from 0.35 to 1.05 ha. The biggest portion of premiums came from Soc Trang (39 percent), followed by Bac Lieu (26 percent). This coincided with the claims, which were the highest in both provinces. The total claim from all provinces was VND 670 billion, which resulted in a loss ratio of 306 percent. In the Appendix, the rates of losses insured and the premium rates used in the pilot programme are presented. The rates were revised in 2013 which resulted in the shorter range of culture period covered by insurance and an increase in premium rates.

**Table 4. Implementation results of aquaculture insurance pilot programme**

Province	Commodity	No. of households participated	Area (ha)	Sum insured (billion VND)	Premium (billion VND)	Claim (billion VND)	Loss ratio (%)
Bac Lieu	Black tiger shrimp and whiteleg shrimp	1 465 (20%)	1 543 (27%)	414 (16%)	57 (26%)	189 (28%)	332
Ben Tre	Black tiger shrimp, whiteleg shrimp and pangasius	1 718 (23%)	705 (12%)	487 (18%)	36 (16%)	82 (12%)	231
Ca Mau	Black tiger shrimp and whiteleg shrimp	811 (11%)	284 (5%)	410 (16%)	30 (14%)	101 (15%)	331
Soc Trang	Black tiger shrimp and whiteleg shrimp	3 400 (45%)	3 214 (55%)	1 029 (40%)	85 (39%)	250 (38%)	293
Tra Vinh	Black tiger shrimp, whiteleg shrimp and pangasius	93 (1%)	57 (1%)	250 (10%)	10 (5%)	48 (7%)	467
Total		7 487 (100%)	5 803 (100%)	2 590 (100%)	218 (100%)	670 (100%)	306

Source: PPCs (2014)

Bao Minh, one of the two companies involved in the pilot phase, reported that heavy losses in aquaculture production resulted in claims for high indemnities, which adversely affected the operation of the agricultural insurance pilot programme (Bao Minh Insurance Corporation, 2014). The losses were high due to increased disease risks simultaneously occurring on a large scale and in all provinces during the pilot implementation. Shrimp mortality was mostly caused by AHPND. In pangasius, the major causes were liver and kidney bacterial diseases. Representatives of the Provincial Veterinary Office reported difficulties in diagnosing AHPND of shrimp. This disease is only determined by an autopsy of dead shrimp with the symptoms of hepatopancreatic necrosis disease provided by aquatic animal health specialists. Even then diagnosis gave only a 60 percent accuracy rate. This made it difficult for the Provincial Veterinary Office to determine the cause of shrimp mortality, which is one of the most crucial parts of insurance claim underwriting (MOF, 2014).

A summary of the specific implementation results by province, as reported by PPCs, are as follows.

## 7.2 Bac Lieu Province

Bac Lieu had a total of 1 465 households of which 89 percent were non-poor, 8 percent were poor and 3 percent were near-poor. Bao Viet Bac Lieu company signed 2 251 shrimp insurance contracts. The operating cost of the pilot project from 2011 to 2013 was VND 853.6 million.

The major challenges included the lack of awareness by farmers and officials of the aquaculture insurance programme and insufficient technical information and knowledge on stocking density, mortality rates, production intensity and disease. The detection of disease was based only on expressed symptoms with no laboratory confirmation. There were problems with timely loss adjustments of insurance claims. Delayed settlement encouraged fraudulent practices. There is a need for improving synchronization of each stage of the claim process. There has been a request for a continuation of the pilot phase so that farmers and insurers can work out their problems.

## 7.3 Ben Tre Province

The number of households insured in Ben Tre was 1 718; 90 percent were non-poor, 8 percent poor and 2 percent near-poor households. One organization was insured. The operating cost of the pilot project to the Steering Committee of Ben Tre was VND 414 million.

The number of insurance contracts accrued losses, especially from shrimp diseases, that were associated with insufficiently coordinated services given to the insured. The Government funds which subsidized premiums of the poor and near-poor households were slowly transferred to Bao Minh Ben Tre Company. This made the

processing of compensation time-consuming and inefficient.

There were problems with the guidelines for compensation rates based on the number of whiteleg shrimp culture days, the mortality that occurred during the various periods and the damages to be assessed. Not everyone was aware of the technical guidelines such as loss insured rates, the days when mortality was likely to take place and the probability of losses. Therefore, it was difficult to determine the premium rates and compensation rates based on stocking densities to determine the extent of the losses at a given point in time. Disease identification was a major problem in shrimp insurance.

There were only two contracts with two companies for the pangasius insurance scheme. Although 20 percent of the premium was subsidized, the companies were not enthused by the insurance scheme as they foresaw significantly increasing costs.

It was concluded that there is a need to increase awareness and strengthen the coordination of all stakeholders including farmers, aquaculture companies, insurers, and relevant units. There is also a need to clarify the guidelines for the staff of the insurers and local administrators so that everyone has a clear and shared understanding of the aquaculture insurance procedures.

#### **7.4 Ca Mau Province**

In Ca Mau, 811 households participated in the pilot programme; 46 were poor and near-poor, the rest were non-poor. The farmers did not agree to the loss insured rate of zero percent due to diseases that occurred in the first ten days. They also disagreed to the shorter range of culture period covered by insurance. Their disagreement included the increasing premium rate.

The participants were able to show that a number of regulations were ignored in the process of implementation. These stemmed from the lack of guidelines for treatment and husbandry of fish, insufficient technical training of the local officers and the delay in settling indemnities. Specifically, insufficient technical information on stocking densities, mortality rates and methods of compensation hindered the processing of claims. Diagnosis of diseases could not be done on-site and relied mostly on visual observation of symptoms. This added to the delay in claim settlement.

#### **7.5 Soc Trang Province**

Soc Trang had the largest contingent of poor households that were insured and received 100 percent premium subsidy from the Government. After two years of implementation, 3 400 households of shrimp farmers had been insured. The premium earning was VND 85 billion of which Government support was VND 55 billion and the insured contributed VND 30 billion. The operating cost of the pilot project to the Steering Committee of Soc Trang was VND 1 304 million.

The lack of detailed guidelines for insured and insurer plagued the programme. Farmers were unfamiliar with the insurance terms and conditions and claim procedures, which considerably slowed down the processing of loss compensation. Insufficient documentation and missing or incomplete farm records added to the delays. At the time of the pilot programme the diagnosis of shrimp AHPND (then only known as EMS because the causal pathogen had not been confirmed) was not available. This made the insurance claim process slow or not possible.

The lack of investment capital was the greatest constraint for the low income aquaculture farmers; the vast majority of rural farmers could not afford to buy insurance. However, there was an expressed need by Soc Trang for the pilot programme to continue; the presence of an insurance programme would allow farmers greater access to investment capital.

#### **7.6 Tra Vinh Province**

Tra Vinh had the least number of households that participated, i.e. 93 households, and 1 percent of the total area involved. It sustained heavy losses and had a loss claim ratio of 467. Aquaculture insurance was considered a

new and complex programme in the province. This made it extremely necessary for the guidelines on insurance conditions, premium, loss insured rates, and compensation procedures to be explained clearly to farmers. Training and communication were identified as important factors for the success of the programme.

There were problems with moral hazard. Farmers did not follow diligently the good farm practices and were not aware of the procedures to prevent or treat diseases. It was suggested that aquaculture insurance officers needed training that would make them familiar with the farming practices and their relevance and link to insurance operations. It was also suggested that after the pilot phase the Government should continue the aquaculture insurance programme to enhance stability of farmers' production and income.

## **8. LESSONS**

The lessons from the implementation of the aquaculture insurance pilot programme are described below.

### **8.1 Technical issues**

- Compared to the rice and livestock insurance, the aquaculture insurance faced a number of issues that weighed down the entire pilot programme with huge losses. The reasons include: (i) widespread disease outbreaks during the implementation period (this was at a time when EMS broke out in China, Viet Nam, Thailand and Malaysia but the causal pathogen was as yet unidentified); (ii) the wide application over fish farming areas with usually small and mostly fragmented plots, which resulted in high transaction cost; (iii) the differences in farming practices in each locality; and (iii) a low recruitment of participating farmers.
- Disease risk is an important problem in product underwriting. Most farmers who decided to participate in the programme wanted to insure against disease. Detection and treatment of a disease require well-trained technicians. Identification of the disease was needed to process claims but there were no diagnostic laboratories with the necessary competence. Farmers and technicians relied on visual observation of external symptoms. But then, as mentioned earlier, the causal pathogen of what was then called by scientists as EMS had yet to be confirmed.

### **8.2 Operational issues**

- Although the programme was initiated and implemented by the Government on a pilot basis, there was no active data collection process to gather information that would guide the expansion phase. This put a constraint on the ability of the insurers to underwrite the insurance policy, with no or little information of the risks covered.
- There were discrepancies between farmers' self-reported aquaculture crop failures and the insurance claims. This was in part due to the weakness in the monitoring of shrimp farming practices. Lacking reliable data and information, the technicians found it difficult to verify claims. These caused delays in claim settlement.
- The farmers had inadequate knowledge of how the insurance coverage worked. They were unsure as to whether they met the operational standards required as there were no specific guidelines for them to follow.
- The requirements for underwriting were not straightforward and caused dissatisfaction among the clients. Revising the rules, premium, loss insured and compensation rates, and providing clear procedure for compensation would have made the aquaculture insurance programme more understandable and appealing to the small-scale farmers.
- A stronger coordination among agencies and units involved in programme would have synchronized efficiently the various services and operations such as work of advocacy, advice on better management practices, damage assessment, and claim verification and settlement.

### **8.3 Farmers' awareness**

- A number of participating farmers expressed a high level of satisfaction with the period of risk covered and the basis for making insurance payments. They also wanted to buy the insurance to cover damages from more types of diseases.

- Some farmers however expressed less satisfaction with the programme due to the delayed payment of compensation (Hadnes and Kristina, 2014). Some respondents thought the processing of claims and disbursement of compensation were complicated and unreasonable. They complained of the lack of technical information, guidelines and procedures for reporting damages from named perils. Some farmers were not convinced of the ways the insurance companies sold their products and were dissatisfied with the information they received from the companies.
- Although some farmers voiced their discontent with the pilot programme and in particular the implementation procedures they maintained that the insurance programme is necessary for the sustainability of the aquaculture sector (Abery *et al.*, 2011).

#### **8.4 Insurance business players**

- Bao Minh and Bao Viet were operating at a loss, and therefore, sought to implement changes in the insurance premium, loss insured and compensation rates. However, during the pilot programme, these changes were regulated under government decisions.
- According to Dispatch 1960/2012 Bao Minh Ca Mau as a subsidiary of Bao Minh Corporation, was only allowed to handle and decide independently on compensations with a maximum value of VND 200 million (around US\$10 000). Any amount beyond that had to be passed on to the head office to process. This significantly lengthened the processing time of each case.
- An important risk-sharing mechanism is reinsurance. This is done through the international market, which presents a large coverage base. Without international reinsurance back-up the local aquaculture insurance programme faced financial strain as the local insurance market cannot retain more than 10 percent of the risk. However, the international brokers had great difficulty underwriting and placing the risk when it was revealed that the aquaculture insurance pilot was incurring significant losses.
- Regarding the reinsurance plan for the pilot programme, in 2012 VINARE, the national reinsurer, transferred 95 percent of the responsibilities to Swiss Re. In 2013, VINARE could only transfer 70 percent of the responsibilities to Swiss Re (Hoang and Khoi, 2015). That means risk sharing remained a challenge to VINARE.
- Bao Viet, Bao Minh and VINARE adopted a cautious approach to joining the programme. They lacked the authority to establish the required framework in this pilot programme. There was little enthusiasm from the private sector to invest in the aquaculture insurance pilot.
- Many of the insurers' officers indicated their limited understanding of the mechanics of aquaculture insurance. This finding calls for better staff training, as indicated in the reports of the provincial committees.
- The insurance companies were not associated with the rural credit institutions and did not coordinate with social organizations such as farmers' associations, women's associations, cooperatives and farmer unions to develop insurance products, which could have enabled the design and implementation of a programme that was more suitable to the needs and circumstances of the clients.

#### **8.5 Regulations and support**

- Officials from the provincial DARDs and PPCs remained positive about the prospects of the aquaculture insurance programme in attaining its goals. They believed that the programme was a great help to the farmers and the rural communities and thus should be continued to allow for key adjustments on its technical and operational aspects.
- Continuing government premium subsidy and better management and operations of the programme would contribute to a more effective implementation of the aquaculture insurance programme.
- Besides the promulgation and dissemination of relevant policies, the content of the technical process and production practices need to be promoted and made clear. Their integration into inspection, compliance and regulation enforcement is obligatory.

## 8.6 Knowledge and training

- Aquaculture insurance is relatively new in Viet Nam and, for Vietnamese farmers as well as the insurance providers, it can be a complex undertaking. It requires a high level of competence in the scientific and business aspects of aquaculture and the technical and business aspects of insurance. Therefore, the officers and business players should be well trained in aquaculture and insurance to effectively meet rural household insurance needs. Insurance business training, awareness raising and publicity of the programme need to be carried out systematically and continually. There will be new problems and emerging issues encountered by farmers and technicians, which should be reported back, analysed as to their implications on the operations, and incorporated in insurance personnel training.
- Development of a national scale research and development programme, incorporating an educational component and public awareness raising on aquaculture insurance would make the public in general and the farming sector in particular understand insurance as an important measure to protect assets and manage risks.
- Farmers lack the means for systematic data collection. Hence developing an information management and communication system that makes clearly understandable information accessible to insurance operatives and farmers should be a component of an aquaculture insurance action plan.

## 9. CONCLUSION AND RECOMMENDATIONS

The Government, recognizing the heavy burden on the financial and operational capabilities of central and regional governments imposed by frequent natural disasters and disease outbreaks, had requested that 2 to 5 percent of all budgets be made available for adversity assistance. The encumbrance forced the Government to look for other avenues for disaster and risk management. It decided on insurance.

The pilot agriculture insurance programme during 2011–2013 was initiated to lighten the load of disaster relief and recovery funding on the state and regional governments and donors. The pilot programme was deemed a success because of the profit made from the crop and livestock insurance schemes with low loss ratios, i.e. 21 percent for crop insurance and 16 percent for livestock insurance. In contrast, the aquaculture pilot incurred a high loss ratio of 306 percent. Although there were major losses in the aquaculture pilot programme, mainly from frequent natural disasters and widespread disease outbreaks, it was counted as part of the government's social protection policy for farmers. It was meant to help farmers cope with and recover from natural disasters and disease outbreaks. Participating farmers faced challenges during the implementation, which they expressed candidly, but they also said they were aware that the small-scale aquaculture enterprises need insurance cover against risks over which they have little or no control.

The pilot phase was initiated with insufficient guidelines and with inadequate technical information to extend to farmers. The field technicians were ill-equipped to provide both technical and insurance information to farmers. The collection of data to properly evaluate the programme was difficult. These shortcomings resulted in what was seen as a less than successful trial. Nonetheless, MARD requested the inclusion of aquaculture in a second phase and MOF has agreed to re-assess the results and make an appropriate recommendation to the Office of the Prime Minister. Crop insurance and livestock insurance were expected to remain in the next phase, 2016–2018.

This review also recommends retaining aquaculture in the second phase but implemented in a smaller area and with fewer farmers who can be monitored closely and constantly. As such, data can be easily collected and analysed to identify and understand better the factors that influence the success of an aquaculture insurance scheme. The development of knowledge and human resource capacities at all levels should be taken prior to the launch of the next phase. Other recommendations are as follows:

- There is a need to develop an information system for data collection and analysis to support crucial modifications of the schemes and better inform management decision. The database should include essential information, i.e. number of participants and area insured, potential insurance clients, crop yields, crop losses over time and causes, levels of insurance coverage, occurrence and severity of perils and disasters, premiums collected, and indemnities paid. The system should include a local coordination point for data collection, actuarial analysis and risk placement to provide better data as well as attract international reinsurers.
- Prototype simulation models that can generate combinations of information in various scenarios portraying

different levels of damage rates, insurance coverage, premium rates and indemnity rates should be developed. The model scenarios should be based on farmers' specific needs for insurance and the private sector's interest in underwriting insurance policies. The models would provide a basis for assessing costs of compensation needed to sustain a pilot insurance. The results could be applied to various locations and various species.

- Should the second phase include aquaculture, it should be implemented in a smaller scale in terms of areas and a number of participating farms. The development of insurance schemes should be guided by viable prototype models as mentioned above and supported by insurance research in various areas such as risk assessment, farm management practices, farmers' perceptions and behaviors, and financial analysis.
- Research, education and awareness creation programmes on aquaculture insurance should be designed and implemented. Training and education through the use of multimedia systems is recommended to assist information diffusion at all levels.
- The establishment of related research and development programmes would require significant financial assistance. The Government of Viet Nam should seek financial partners and donors to invest in the programmes.
- Farmer cooperatives and organizations should be strengthened. This would help in the collection of accurate information on farm management practices, production risks and disease management. The possibility of forming cooperative, group or mutual insurance should be explored. This may facilitate the provision of insurance, which could be bundled with other financial services to members.
- Cost coverage for pond rehabilitation after crop failure may be introduced. This would enable farmers to treat their ponds following the officially recommended technical guidelines. The benefit would spread wider to the entire region by reducing the risk of disease outbreaks through discharge and intake of contaminated water and other breaches of biosecurity.

## **10. PROPOSITION FOR THE SECOND PHASE**

MARD has proposed the following guidelines for the second phase:

- Regarding support for natural disasters and disease epidemics, only natural disasters and disease epidemics that are common, dangerous, occurring on a large scale, and strongly influencing production yields should be covered.
- Personnel of MARD in collaboration with local authorities should be assigned to re-assess the risks generated by natural disasters and disease epidemics.
- Individual households including cooperatives and organizations producing agricultural, livestock and aquaculture products as defined in Decision No. 315/QD-TTg dated 1 March 2011 are suggested to be eligible participants in the programme.
- That 90 percent of insurance premium is subsidized for poor and near-poor households, 50 percent for non-poor households and ranchers and 20 percent for cooperatives or organizations.

MOF has proposed that the premium support be given only to the poor and near-poor households in the second phase. A number of scenarios was drawn up by MOF. The first is that each pilot province would select three districts, each district would select three communes (as guided by Decision No. 315/QD-TTg), and assume that 100 percent of poor and near-poor households will participate. This scenario would require an annual state funding of more than VND 164 billion. If the second phase was implemented in all communes of the 20 provinces, around VND 1 575 billion would be needed. If the rice and livestock insurance were extended to all provinces in the country, and the Government only supports the poor and near-poor households as assumed in the above scenarios, an estimated insurance premium support of VND 6 932 billion per year would be required. If shrimp and pangasius were included, the insurance premium support would be VND 15 393 billion.

MOF had indicated that the state budget in 2015 and the following years could be strained because of the implementation of social welfare policy measures, rising debt repayments, increasing security and defense spending, and huge investments in infrastructure. In the insurance sector, besides the policies to support agricultural insurance, the Government is also supporting premium subsidies to fisheries insurance (boats and facilities). Therefore, in the short term the Government would likely restrict the coverage of agricultural insurance to poor and near-poor farmers and not on a national scale. If it is necessary to implement the extended pilot

programme, as MARD suggests, there is a need to reconsider the project scope and the farmers who should be eligible to receive the support, and to formulate a programme that is within the financial capability of the state to support.

Regarding the commodities to be insured, the agreement between MARD and MOF is summarized below:

- Crop insurance: The focus will still be on rice. For other major crops, MOF will coordinate with MARD to initiate surveys, assessments and then propose a plan to the Prime Minister to run a pilot on other crops.
- Livestock insurance: The programme will continue to provide insurance cover to buffalo, dairy cow, swine and poultry.
- Aquaculture insurance: The assessment from the first phase indicates that insuring against aquaculture risks pose a great challenge to the current capabilities of the insurance providers in Viet Nam. However, it has been proposed that where there are possibilities of attracting insurers without state premium subsidy, farmers and the private insurance sector are encouraged to explore profitable ventures for implementation.

In order to allow the current state budget to support the programme, MOF recommended a guideline for the next pilot phase on agriculture insurance (2016–2018) to the Prime Minister, as follows:

- Extend the agricultural insurance based on voluntary participation of households and agriculture organizations and having the appropriate conditions and facilities to benefit from the insurance.
- Objects insured will be specified by participating insurance companies under their own rules and conditions. In the immediate future, the programme will focus on rice and livestock insurance. Insurance companies and farmers should jointly agree on the levels of aquaculture insurance premiums and compensation rates.
- The Government will provide premium subsidy only to poor and near-poor households as guided by Decision No. 315/QD-TTg and Decision No. 358/QD-TTg, i.e. 100 percent to poor households and 90 percent to near-poor households.
- The pilot areas in the second phase will be in the same districts and communes selected and insured in accordance with Decision No. 315/QD-TTg, plus another six districts of the Ha Giang province for cattle insurance.
- MARD will coordinate with selected provinces to re-assess the risks of natural disasters and disease epidemics and select the insurance product that fits each locality.
- As to the roles and responsibilities of each actor, it was recommended that:
  - MOF performs management functions, monitor insurance business activities and issue guidelines on premium support processes and procedures.
  - MARD issues guidelines on farm practices, processes to announce and confirm diseases, and confirm the extent of actual damages. The Ministry will assist the provinces in promulgating the guidelines.
  - PPCs perform such duties as announcing and confirming epidemic diseases, issuing regulations on production practices matching the conditions of the locality, estimating premium to support poor and near-poor households, directing the functional units, and coordinating with insurers to implement the second phase.
  - The participating insurers and reinsurer design the insurance products.

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## APPENDIX

## Rates of losses insured and premium rates used in the pilot programme

**Table A1. Rates of losses insured for whiteleg shrimp in the pilot insurance programme under Decision No. 3035 of MOF dated 16 December 2011**

Culture day	Loss insured (%)		Culture day	Loss insured (%)	
	Diseases	Natural disasters		Diseases	Natural disasters
1–10	0	15	50–54	55	55
11–19	17	17	55–59	64	64
20–29	21	21	60–64	54	73
30–34	26	26	65–69	44	82
35–39	32	32	70–74	28	91
40–44	39	39	75–80	16	100
45–49	46	46			

**Table A2. Rates of losses insured for black tiger shrimp in the pilot insurance programme under Decision No. 3035 of MOF dated 16 December 2011**

Culture day	Loss insured (%)		Culture day	Loss insured (%)	
	Diseases	Natural disasters		Diseases	Natural disasters
1–10	0	14	70–74	33	39
11–19	15	15	75–79	28	44
20–29	16	16	80–84	23	49
30–34	17	17	85–89	17	54
35–39	18	18	90–94	15	60
40–44	20	20	95–99	13	66
45–49	22	22	100–104	10	73
50–54	24	24	105–109	7	79
55–59	27	27	110–114	6	86
60–64	31	31	115–119	3	93
65–69	35	35	120	2	100

**Table A3. Rates of losses insured for pangasius in the pilot insurance programme under Decision No. 3035 of MOF dated 16 December 2011**

Culture day	Loss insured (%)		Culture day	Loss insured (%)	
	Diseases	Natural disasters		Diseases	Natural disasters
1–10	0	14	91–97	57	59
11–13	16	16	98–104	61	63
14–20	18	18	105–111	65	68
21–27	21	21	112–118	68	71
28–34	23	23	119–125	70	75
35–41	26	26	126–132	72	77
42–48	29	29	133–139	71	80
49–55	32	32	140–146	69	84
56–62	36	36	147–153	56	88
63–69	40	40	154–160	46	91
70–76	45	45	161–167	36	93
77–83	50	50	168–174	30	97
84–90	54	54	175–182	27	100

**Table A4. Premium rates of shrimp and pangasius in the pilot insurance programme under Decision No. 3035 of MOF dated 16 December 2011**

Commodity	Intensive farming (%)	Semi-intensive farming (%)	Improved extensive farming (%)
Shrimp	7.42	8.02	9.72
Pangasius	3.82	4.08	4.82

**Table A5. Rates of losses insured for whiteleg shrimp in the pilot insurance programme under the Decision No. 1042 of MOF dated 8 May 2013**

Culture day	Loss insured (%)		Culture day	Loss insured (%)	
	Diseases	Natural disasters		Diseases	Natural disasters
1–10	0	10	47–49	38	38
11–13	17	17	50–52	25	44
14–16	18	18	53–55	20	50
17–19	19	19	56–58	15	56
20–22	21	21	59–61	0	62
23–25	22	22	62–64	0	68
26–28	24	24	65–67	0	74
29–31	25	25	68–70	0	80
32–34	26	26	71–73	0	86
35–37	29	29	74–76	0	92
38–40	32	32	77–79	0	98
41–43	34	34	80	0	100
44–46	36	36			

**Table A6. Rates of losses insured for pangasius in the pilot insurance programme under Decision No. 1042 of MOF dated 8 May 2013**

Culture day	Loss insured (%)		Culture day	Loss insured (%)	
	Diseases	Natural disasters		Diseases	Natural disasters
1–10	0	14	91–97	28	28
11–13	8	8	98–104	30	30
14–20	9	9	105–111	32	32
21–27	10	10	112–118	34	34
28–34	12	12	119–125	35	35
35–41	13	13	126–132	36	36
42–48	14	14	133–139	8	46
49–55	16	16	140–146	0	56
56–62	18	18	147–153	0	66
63–69	20	20	154–160	0	77
70–76	22	22	161–167	0	88
77–83	25	25	168–174	0	98
84–90	27	27	175–182	0	100

**Table A7. Premium rates of shrimp and pangasius in the pilot insurance programme under Decision No. 1042 of MOF dated 8 May 2013**

Commodity	Premium rates (%)
Shrimp	9.72
Pangasius	4.82

**Table A8. Premium rates of shrimp and pangasius in the pilot insurance programme under Decision No. 1725 of MOF dated 23 July 2013**

Commodity	Premium rates (%)
Shrimp	13.73
Pangasius	6.83

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